

Rajant Needletail

Supercharge your APT Connections

The **Rajant Needletail** is a **BreadCrumb® node** that enables ultra-high throughput connections between your wired network and your Kinetic Mesh® network. When installed on your wired network, it assumes responsibility for bridging the wired network to any other BreadCrumbs on the same Ethernet segment. It performs any required encryption or decryption to ensure secure and fast delivery of data, voice, and video traffic. Working in concert with other BreadCrumb nodes via Rajant's proprietary Automatic Protocol Tunneling (APT) functionality, the Needletail allows network operators to establish multiple Layer 2 connection points between the wired LAN and Kinetic Mesh networks to increase capacity while eliminating single points of failure.



Needletail Key Features

- **10 GbE** Ethernet to handle large amounts of data and high throughput
- **Powerful** CPU devoted to Kinetic Mesh encapsulation and decapsulation
- **Seamless** integration with current BreadCrumb models, and backward compatibility with prior BreadCrumb nodes
- **Fast** and reliable ingress and egress for data, voice, and video
- **Support** for several strong cryptographic options used for data and MAC address encryption, as well as per-hop, per-packet authentication (list of options on page 2)
- **InstaMesh®** networking software, enabling the network to quickly adapt to rapidly-deployed and quickly – or constantly – moving network elements
- **Self-configuring** operation for fast and easy deployments
- **Compatible** with Rajant's BCICommander network management software and BCIEnterprise monitoring tool
- **Designed** for indoor installations

Utilizing the Rajant Needletail to Your Advantage

Whether you are deploying a new wireless mesh network or expanding the capabilities of your existing mesh network, Needletail nodes can greatly increase throughput and eliminate potential ingress/egress bottlenecks.

In many scenarios, video can tax connections between wired and Kinetic Mesh networks as the number of video sources and viewers increases. Rajant's Needletail nodes can significantly accelerate the flow of this data across the LAN/mesh boundary, providing network operators with greater flexibility to construct or expand a wireless network that meets a wide range of high-capacity requirements and integrates with your existing wired infrastructure.

The Needletail is a versatile product that can easily be utilized in rail, ports, mining, construction, airports, oil and gas, utilities, solar, wind, and warehousing environments.

With very high throughput, the Needletail reduces the overhead needed to manage equipment while providing network operators greater flexibility to construct or expand a wireless network that meets a wide range of high-capacity requirements.

InstaMesh

InstaMesh is the advanced, patented¹ protocol developed by Rajant that directs the continuous and instantaneous forwarding of packets from wireless and wired connections. It enables complete network mobility, high throughput, and low latency with very low maintenance and administrative requirements. Operating at Layer 2 and not requiring a root node or LAN Controller, InstaMesh provides robust fault tolerance even if there is a connection or node outage. No matter how you configure your network, InstaMesh networking software always determines the most efficient pathway between any two points, even when those points are in motion.

¹ U.S. Patent 9,001,645

Model	Description
SLIPSTREAM-XG	Needletail appliance for high performance APT routing between wired LAN and BreadCrumb networks. Offers two 2.5 GbE and four 10 GbE Ethernet interfaces.

Network & Security	
Network Functionality	VLAN and QoS support; Bridge; Gateway; DHCP; NAT and Port Forwarding; Automatic Protocol Tunneling (APT)
Security	<ul style="list-style-type: none"> Multiple cryptographic options, including NSA Suite B algorithms (implementation not certified); for information on models with full Suite B certification, contact Rajant or your authorized Rajant partner Separately configurable data and MAC address encryption via AES256-GCM, AES192-GCM, AES128-GCM, AES256-CTR, AES192-CTR, AES128-CTR, XSalsa20, XSalsa20/12, and XSalsa20/8 Configurable per-hop, per-packet authentication between BreadCrumbs via AES256-GMAC, AES192-GMAC, AES128-GMAC, HMAC-SHA512, HMAC-SHA384, HMAC-SHA256, HMAC-SHA224, HMAC-SHA1, and Poly-1305-AES

Power	
Input Voltage and Current	12 – 48 VDC, up to 30 A
Power Supply	100 – 240 VAC, 4.2 A, 50 – 60 Hz input to 24 VDC, 13.75 A, 330 W output power supply included

Input/Output	
Ethernet	4x 10 GbE 2x 2.5 GbE
USB	Rear: 2x USB 3.2 Gen 2, Type-A Front: 4x USB 3.2 Gen 2, Type-A
Switch Button	Function 1: Power On/Off Function 2: Zeroize Keys and Restore Factory Defaults
Power	5-Pin Terminal Block Power Input (12 – 48 VDC) with Automotive Ignition Power Sensing

Physical	
Dimensions	267 mm x 82 mm x 240 mm (10.51 in x 3.23 in x 9.45 in)
Weight	5.3 kg (11 lbs 11.0 oz)
Temperature	Ambient (operating): -40 °C to +50 °C (-40 °F to 122 °F) Storage: -40 °C to +85 °C (-40 °F to 185 °F)
Humidity	Operating: 10 – 95% relative, non-condensing Storage: 0 – 95% relative, non-condensing
Enclosure	Indoor use only
Certification	FCC (US) IC (Canada) CE mark (European Economic Area, Switzerland and Turkey) UKCA mark (Great Britain) UL/IEC/EN 63268-1 (UL Listed & CB)
Warranty	90 days